FOUNDRY TRADE JOURNAL
Established 1902
WITH WHICH IS INCORPORATED THE IRON AND STEEL TRADES JOURNAL

Vol. 85 Thursday, October 14, 1948 No. 1676

49, Wellington Street, London, W.C.2
'Grams: "Zacatecas, Rand, London"
'Phone: Temple Bar 3951 (Private Branch Exchange)
PUBLISHED WEEKLY: 26s. per annum (Home and Overseas)

The Paris Conference

Because we have participated in so many of the annual meetings of the *Association Technique de Fonderie*, it is possible for us to note the great changes that have taken place in recent years. Primarily there is an ever-increasing foreign participation, and this year there were but few countries of Europe which were not represented. Moreover, this participation is much more intimate than used to be the case. Thus when an overseas technician prepares and presents a Paper, if he be unable to speak French sufficiently well, there is attached to him an "*ingenieur*" skilled in the particular subject under discussion, and as a result of this close collaboration, the Paper gains rather than loses substance when expounded. In the past there has been close co-operation "at the top," now we see it extending to the younger generation, which is all to the good.

This year, under Dr. Ballay's enlightened presidency, no fewer than 25 Papers were presented. To say that they were all of uniform excellence would be stretching the truth, but we well know that honest vetting would often create unpleasantness, yet the 1948 vintage was pretty good. The four British Papers were very well received, and we were pleased to see how happily these young authors acquitted themselves. They all gave the impression that they were masters of the subject, possessing a real grasp of what was required from them by questioners.

For the first time since the war, ladies were invited to participate in an evening function. This was held at the Eiffel Tower. Moreover, there was a dance on the closing day to celebrate the 25th anniversary of the *Ecole Supérieure de Fonderie*. We were happy to be able to voice the appreciation of the foundry industry of the world on the success this school has achieved. The only test of the worth of a scholastic institution is the success in after life of the ex-students. The sole diploma'd English ex-student of the Paris school has achieved considerable eminence in British foundry activities, and so it is in most European countries. In France, of course, many now hold key positions. Hundreds of British foundrymen, who have participated in Paris congresses, have reason to be indebted to Mr. Gabriel, the administrative secretary of the A.T.F. for very many years. Now he has retired and has been presented with a suitably inscribed commemorative medal. British foundrymen will share the good wishes expressed to him by his colleagues.

The occasional visitor to France perhaps receives a too-dismal picture of the country's progress, because he continually reads news of strikes and industrial upheavals. Mr. Ricard, the president of the *Centre Technique* put the matter in a better perspective, when he addressed an informal banquet tendered to overseas guests. He rightly pointed out that each year sees some improvement; that the current harvest was good; that industry was now working at 98 per cent. of pre-war; that in the foundry industry the relationship between the employers and operatives was excellent, and that, in the near future, several controls were to be removed. It is true to say that the fundamental economics of France are good, because she is much more nearly self-supporting than we, or indeed most European countries. In this struggle for a balanced economy, as in all others since King Edward VII inaugurated the *entente cordiale*, France can count on the sympathetic and, we hope, the practical support of this country. Finally, we have once again to thank our French friends for the wonderful hospitality they invariably extend to their overseas visitors.

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An Improved Spectrograph

Of interest to those industrial concerns whose research departments are engaged in conducting alloy analysis by spectrograph, particularly in the metallurgical field, is the recent development in Edinburgh of an electronic instrument which directly scans the light along the solar spectrum and produces a moving image on its cathode-ray oscillograph screen.

The application of this instrument to industrial requirements has interesting and time-saving possibilities. For instance, the necessity of photographing the spectrum will be completely eliminated. Before this electronic device can be so applied, however, improvement will have to be made in present-day spectrographic light sources; these at present being of a fluctuating nature cause the display on the cathode-ray tube to jump about and make it very difficult to messure the degree of light intensity. This problem is well on the way to being solved and it is confidently anticipated that a solution may be found by the use of a device known as the image storage tube combined with the application of known television techniques for electronic scanning. This development is the work of Mr. W. D. Oliphant, F.R.A.S., of Edinburgh.

High-Vacuum Furnace Equipment

Important developments in the application of high vacuum to the melting and heat treatment processes for metals are presaged by an agreement between Birlec Limited, Birmingham, and British American Research Limited, Glasgow. British American Research Limited, is the British associate of National Research Corporation of America, whose work in the field of high vacuum in industry is known throughout the world, whilst Birlec Limited is equally well known in the sphere of industrial electric furnace equipment for heat treatment and melting. Under the agreement the two companies combine their unique and specialised experiences to design and produce high-vacuum units for such applications as melting, sintering and annealing of all classes of metals, whether ferrous or non-ferrous.

The high-vacuum furnaces now available introduce a new concept of the degree of vacuum. Hitherto, pressures lower than one millimetre of mercury or thereabouts have not been considered practicable on an industrial scale, but the new equipment is designed to operate at pressures as low as one-thousandth of a millimetre (one micron). There is now a standard range of melting furnaces of capacities from laboratory size up to units capable of producing considerable tonnages, whilst for other heat treatment applications furnaces will be designed to meet individual requirements.

JOHN WILKINSON

In the October issue of the *Edgar Allen News*, there is contained in an article by Mr. H. Holcroft, a chronology concerning the life of John Wilkinson and his brothers. This will be found most useful for those delving into his activities.

Forthcoming Events

(Secretaries are invited to send in notices of meetings, etc., for inclusion in this column.)

OCTOBER 18.

Chemical Engineering Group.

"Recent Developments in High-Vacuum Technology," by R. S. Morse, at the Apartments of the Geological Society, Burlington House, London, W.1, at 5.30 p.m.

Institution of Production Engineers.

North-Eastern Section:—"Material Handling," by H. M. King, at Neville Hall, Newcastle-upon-Tyne, at 6.30 p.m.

OCTOBER 20.

Birmingham Section:—"The Lost Wax Process in Precision Casting," by A. Short, at the James Watt Memorial Institute, Great Charles Street, Birmingham, at 7 p.m.

OCTOBER 21 and 22.

Conference on Foundry Core-Bonding.

At Ashorne Hill, Leamington Spa, under the auspices of the British Iron and Steel Research Association. (Details published in the JOURNAL, September 9.)

OCTOBER 21.

Institute of British Foundrymen.

Scottish Branch:—Joint meeting with the Dundee Institute of Engineers. "Castings for Machine Tools," by W. Y. Buchanan, at the University College, Dundee, at 7.15 p.m.
Lincoln Section:—"Foundry Quiz," Chairman V. C. Faulkner, at 7.15 p.m., at Lincoln Technical College.

Institution of Mechanical Engineers

Annual Dinner at the Dorchester Hotel, Park Lane, London, W.1, at 7 p.m. for 7.30 p.m.

OCTOBER 22.

Institution of Production Engineers.

Western Section:—"The Review of Compressed Air and its Practical Application," by W. J. Ford, in the Canteen of T. H. & J. Daniels, Limited, Stroud, at 7.30 p.m.

Institute of Mechanical Engineers.

Presidential Address, by Captain W. Gregson, M.Sc., and General Meeting at 6 p.m., at Storey's Gate, St. James's Park, London, S.W.1.

Manchester Association of Engineers

"The Production of High Quality Steel," film and discussion introduced by W. H. Salmon, at 6.45 p.m., at the Engineers' Club, Albert Square, Manchester.

OCTOBER 23.

Institute of British Foundrymen.

East Midlands Branch:—Visit to S. Russell & Sons, Limited, followed by "The Block Runner," by J. F. Measures; "The Distributed Runner," by P. A. Russell; and "Runners and Feeders for Non-ferrous Metals," by D. W. Berridge, at Leicester Technical College, at 6 p.m.

Latest Foundry Statistics

The September Statistical Bulletin issued by the British Iron and Steel Federation shows that during August the average weekly output of metal melted for the purpose of making steel castings was 7,500 tons, as compared with 6,200 tons in July, 1948, and 6,700 in August, 1947. The average weekly weight of the steel castings sold in August was 3,300 tons, as against 3,400 tons last August. The number of people engaged in ironfounding during the week ending July 10 was 146,690; this represents a gain of 914 during the month. The gain in manpower over June was 1,047, and the loss of female labour is thus shown to be 133.

DR. J. T. MACKENZIE, Technical Director of the American Cast Iron Pipe Company, has been elected chairman of the Birmingham Chapter of the American Foundrymen's Society.

Making a Turbine Casing for Hydro-electric Plant*

Large One-off Casting produced with simple tackle

By T. Rigby

In presenting this Paper, on how this type of casting is produced, it should be made quite clear it is purely a "one off" job, and this particular size and design may never be required again. Often, there are two, and sometimes three, different sizes going through the foundry at the same time, so the expense and time to make a pattern would be considerable. Fig. 1 shows the casting as it is being machined. It weighs just under 3 tons, and is made in green sand, with a dry-sand core. Fig. 2 shows a template of the casting cut out in cardboard, and secured to a wooden frame. On this template are drawn the details, such as the flange, feet guides, handholes, bosses, and thickness of metal. Actually it is a full-size replica of the drawing as received in the pattern shop. There are also four centre lines marked, which are used to set the above details, when they are being rammed up in the mould.

Casting the Core-grids

On receipt of the template in the foundry, a 2-in. spindle is set into position, and a bed is swept with the main sweep and dusted over with parting powder. The template is laid on the bed and with a fine vent wire, the outline, the guides, and other details are clearly marked (Fig. 3). Two core irons, or grids, are cast, leaving sufficient clearance for the thickness of metal and contraction of the casting within the scribed lines. Fig. 4 is one of the grids ready for casting; this is the top grid and bottom one, which has three staples cast in for lifting, will be seen later.

*A Paper read before the Lancashire Branch of the Institute of British Foundrymen, Mr. H. Haynes presiding.

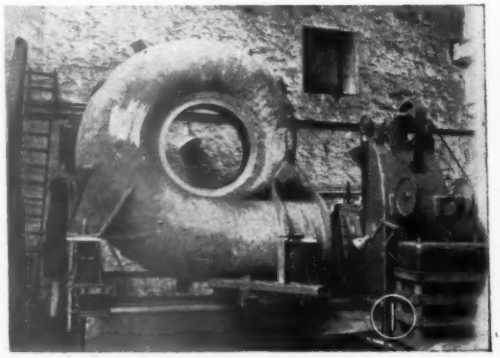


FIG. 1.—TURBINE CASING BEING MACHINED.

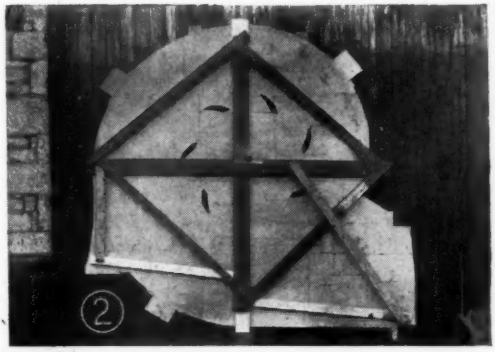


FIG. 2.—TEMPLATE IN CARDBOARD MOUNTED ON WOODEN FRAME.

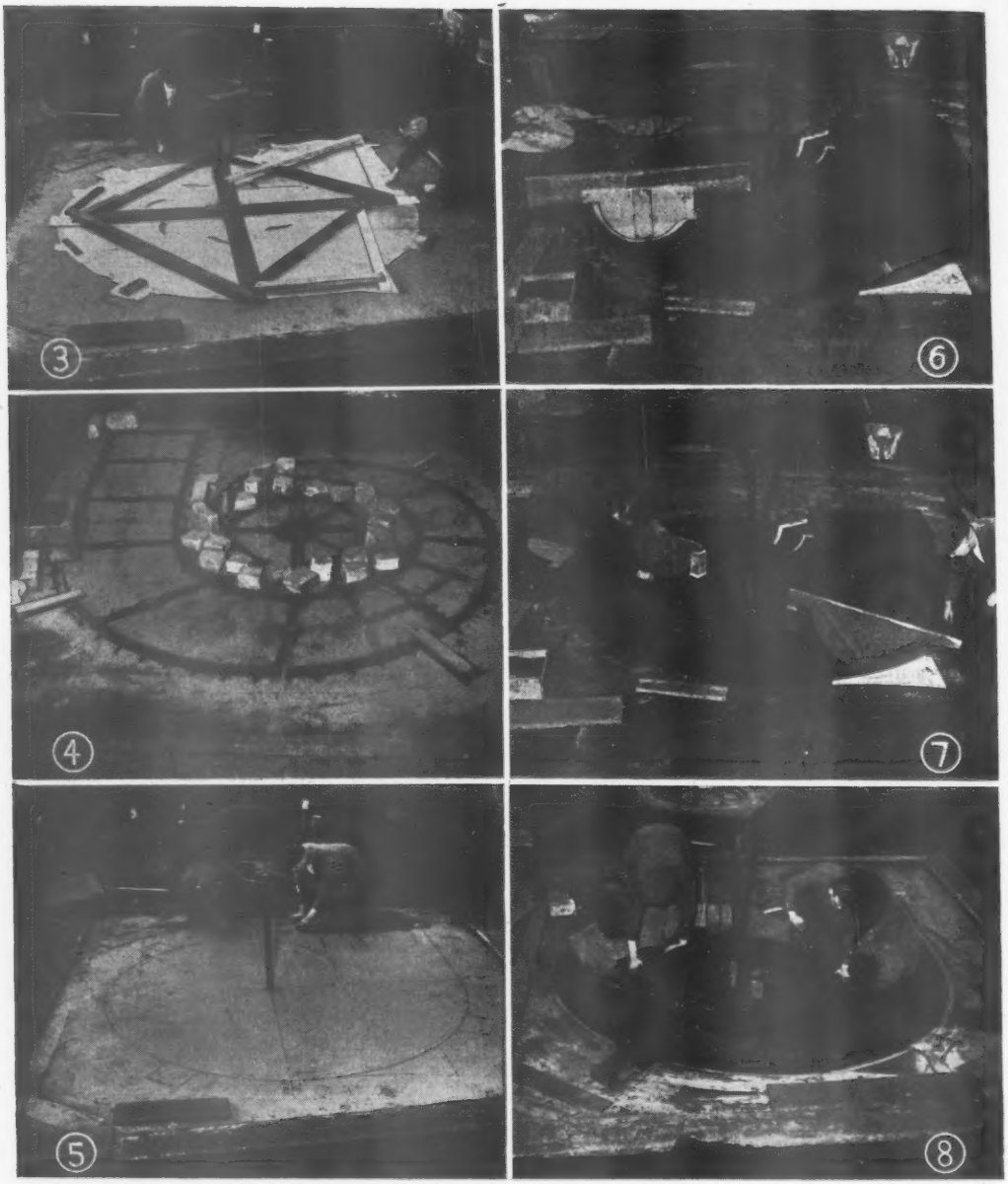
Moulding

A commencement is now made of the moulding. The same procedure is repeated as for the grids, the outline is marked off, also the four centre lines A, B, C and D, which are carried out a distance of about 9 in., and sprigged to keep them intact until the mould is completed. Fig. 5 shows the bed marked out and the flange being fixed into place. This is carried out by means of a spirit level, and a gauge stick, to check the distance from line A to the back of the flange.

The feet are next set in a similar manner, the lines B and D being used to give the exact distance, and this is very important. Four sweeps are brought into use, of varying diameters (Fig. 6), which correspond with the sizes shown on the centre lines given on the template.

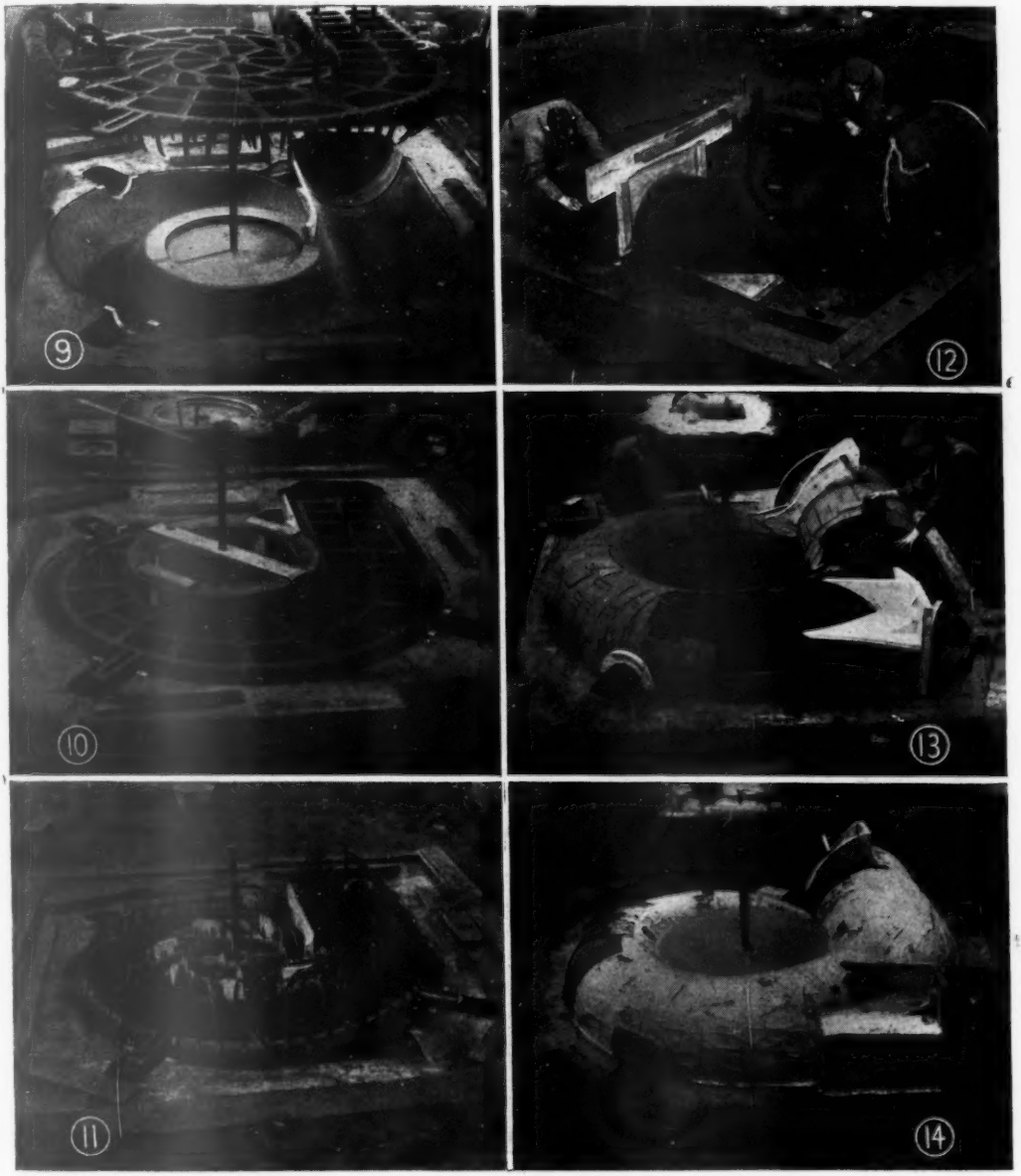
The first sweep used is 30 in. dia. This is attached to the main sweep by two dowels and made secure with two screws. A distance of about 4 in. is swept on line A, this being the limit, as the size begins to decrease to 25 in. on B line; then it is taken off and replaced by one of that diameter. This is repeated on the other centre lines. Incidentally, the smaller one is used also to sweep the centre.

The remaining parts between the centre lines are cut away and templates of various sizes are stamped in to give an impression of the size required (Fig. 7). The three handholes are next fixed into position. These are 14 in. dia. on the outside, the inside 9 in. dia. The grids at these points are made 2 in. longer than



FIGS. 3-8.—STAGES IN MOULDING THE TURBINE CASTING.

(3) Marking-out Sand Bed from the Template.
(4) Open-sand Mould for a Half Core-Grid.
(5) Mould Bed Marked Out. Setting Position of Flange.
(6) Use of Sweeps to form the Body.
(7) Templates for Completing the Body Shape.
(8) Facing the "Clays" Preparatory to Core-Making.



FIGS. 9-14.—STAGES IN MAKING THE CORE AND PREPARING FOR THE MOULD TOP.

(9) Lowering the Bottom Core-Grid.
(10) Device for Matching the Core Halves
(11) Upper Core-Grid in Place
(12) Completion of the Core.
(13) Forming the Thickness with "Clays."
(14) Paper "Parting" for the Mould Top.

Making a Turbine Casing

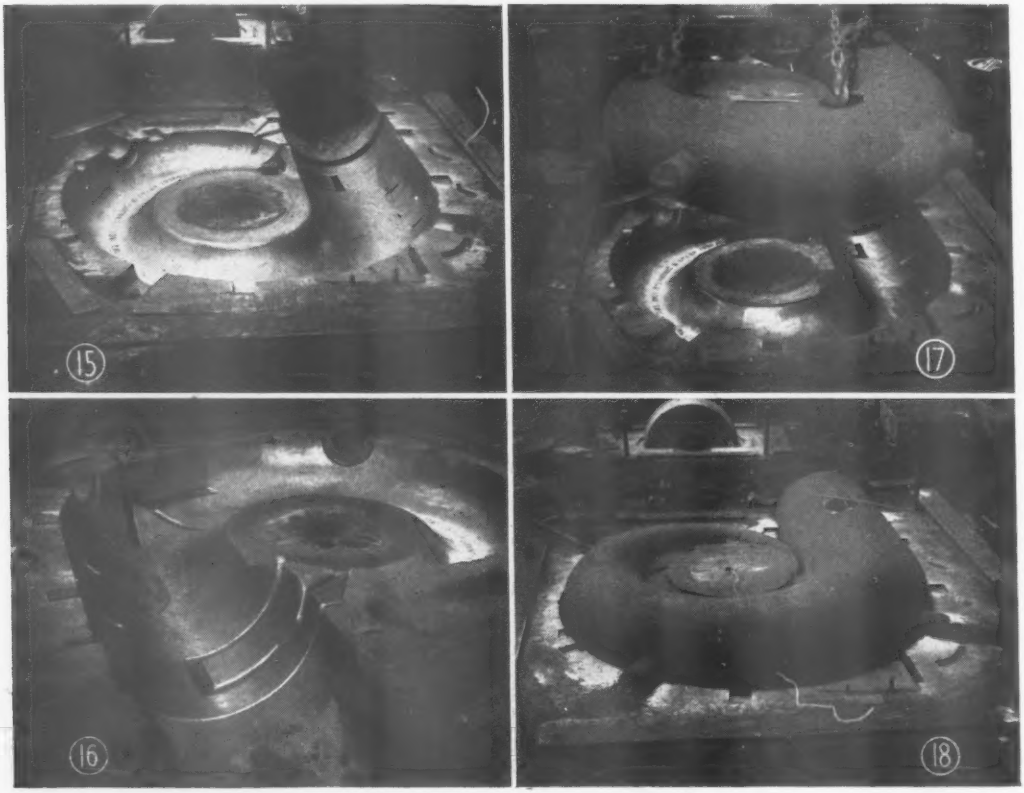
the prints, as they are used to hold the core down, no chaplets or studs being used.

When the top part is being rammed up, a 2-in. bar is placed on the grid and allowed to protrude through the top a few inches and wedged when weighting. The operator shapes the mould to these impressions and gives it a rough finish.

Core-making

A core box is made to make clay thicknesses, these being about 8 in. by 4 in. and 1 in. thick—the thickness of the metal. The mould is now lined with these "clays" (Fig. 8) and the centre is made in sand, the surplus being used to fill in between the clays. The core box, as it were, being complete, the bottom grid is lowered into position (Fig. 9). Six guides are now put into place. These rest on the centre and are held by a ring which also carries the four centre lines to correspond with the lines on the joint (Fig. 10). This half of the core is rammed up to joint level. The ring is then removed, and the upper grid bolted to the bottom one (Fig. 11). The core is now to be completed, using sweeps on the centre lines and templates for the intermediate sizes, as in Fig. 12. The top half of the flange, the feet and handholes, are fixed in their respective places, and the core covered is with clay thicknesses (Fig. 13), similar to the ones used in the bottom half.

To ensure a good parting when lifting off the cope or top part, the clays are covered with paper in prefer-



FIGS. 15-18.—COMPLETION OF MOULD AND ITS RE-ASSEMBLY.

(15) Finished Mould from the Body End.
(16) Finished Mould from the Flange End.
(17) Lowering the Core into Place.
(18) Mould Ready for Closing.

ence to parting powder (Fig. 14). The top part is rammed up, lifted off, and finished. The clays are removed, each one receiving a quick glance to check that no thickness of metal has been lost in the ramming-up process. The core is lifted out, repaired if necessary, and stoved.

The bottom clays are removed and the mould is completed as shown in Fig. 15.

Fig. 16 gives another view of the mould, showing the feet more clearly; Fig. 17 shows the core being lowered into its place and, finally, the core is shown in position and the staple holes repaired in Fig. 18. Fig. 19 shows the job being cast.

DISCUSSION

MR. HULME referred to the making up of the sand bed. Was there any separation by the outside spindle, or was there any outside spindle at all? He wondered whether, having regard to the number of strickles there were to hold the sand bed, it would get out of truth?

MR. RIGBY replied that it would not. There was no setting in centres as he had always been accustomed to himself. It was simply driven down in the floor with a cover over it. The spindle worked on the collar instead of revolving on the centre. There was sufficient support and no trouble whatever; each sweep was lettered, used, and then replaced by the one bearing the next letter. The digging out was done roughly with a spade just to sweep a bit up, and parting sand was spread, and this kept things right until the next sweep. There would be no getting out of truth because in the machine shop the feet were machined first, then the circle was bored out. There had to be a given distance from the centre to the feet, so that nothing could be out of truth in any way at all.

MR. W. HOLLAND (Manchester) said that Mr. Rigby, like most foundry managers, had been at a great disadvantage for the reason that during the war period many of his moulders had left the works to go into other industries. As a matter of fact, he was left with about four of the older skilled men and had therefore had to train others to take the place of those who had gone, a procedure which was all to his credit. Some of the turbine casings were made for turbines developing 12,000 h.p., and, as it required 8 to 10 weeks' time to make a casting, much care had to be exercised.

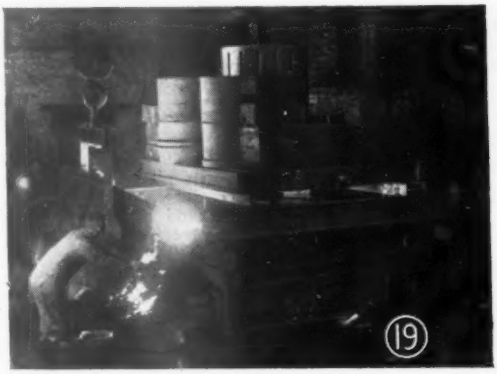


FIG. 19.—POURING THE TURBINE CASING.

Practical Details

MR. D. FLEMING (Manchester) asked what kind of sand was used for the cores. Was it straight core sand?

MR. RIGBY answered that it was compounded from black sand, red sand, and manure. There was no other bond than the natural one, although clay wash was added.

In further reply to MR. CHEYNE, Mr. Rigby said the two runners were on the main bed, a riser being taken off at the highest point, and one off each foot.

MR. FLEMING asked were two ladles used to cast the job, as the last slide had shown only one ladle.

MR. RIGBY replied that only one ladle was used.

MR. W. HOLLAND asked for information respecting the making of the core grid, and the provision for the contraction of the feet and the like.

MR. RIGBY remarked that there was nothing unusual about making the core grid. The grid board was put down, and the template marked on the outside, so as to allow enough clearance for contraction and the thickness of metal, about 3 in. or 4 in. altogether.

MR. A. HOPWOOD (Liverpool) said that the first time he had tried the method he was really surprised at the result, and he had kept to it ever since; it gave good sound cores.

THE PRESIDENT (Mr. Haynes) asked whether the arm for the spindle, on which there seemed to be about 20 holes, regulated the position of the boards for strickling, or was it just a matter of fixing boards on ordinary standard equipment. He noticed that there were clay cakes in small sections. Was there a little core box, or something, in order to make the cakes to plaster over after making the clay thickness, or were they merely cut off in pieces.

MR. RIGBY explained that the arms were of standard types. There was a series of holes for the purpose of fixing any sweep required. Sometimes, when the job was a deep one, two straps were put down from the main arm in order to carry the sweep if it were some depth below the floor. The clay cakes were made in an open box about 8 in. by 4 in. by 1 in. deep and of suitable curvature.

THE PRESIDENT asked if ashes were put in the core and if a cinder bed was put underneath to prevent scabbing in the mould.

MR. RIGBY answered that there was a cinder bed which was used many times over, and for the core, fist-size furnace coke was used.

THE PRESIDENT noticed that sprigs were used in the surface of the mould, as was the case with armour-plate castings.

MR. RIGBY said there was face sprigging only for places where the metal impinged on the core.

Making a Turbine Casing

Core Grids and Contraction

Mr. J. COLWELL (Droylsden) asked if there were any difficulty in removing the grid from the castings; it seemed very thick.

MR. RIGBY replied perhaps the grid did appear to be thick, a good strong core-iron being necessary to lift a core of that size when it was green. As to its extraction, there was a hole in the centre of the casting, and it could be broken out through the guides and through the mouth. It threaded itself out, and as it was tapered it soon relieved itself. It was a somewhat laborious job initially. In answer to MR. W. N. COOK, Mr. Rigby said the casting was about 8 ft. 9 in. diam., and called for 10 ft. square box.

MR. E. LONGDEN (Manchester) mentioned that the lecture reminded him of one he gave himself about 22 or 23 years ago on the making of a 72-in. centrifugal pump bed, and asked what section of metal was used by Mr. Rigby.

MR. RIGBY said it would be 1 in.

MR. E. LONGDEN supposed that the core iron was made in one piece to control the contraction of the casting.

MR. RIGBY said that usually 2 or 3 in. of sand were carried round the core iron, which was sufficient.

MR. E. LONGDEN said that many such castings were now made in bronze and cast iron, and there was more than one way of making them. One method was to have a plate which held nine centres, and where strickles were used there were various points on the spindle with centres allocated according to the drawing. The one great problem with castings of that kind was their very large sizes, so that there was risk of cracking trouble with their larger sections. Preparation had to be made for getting out the core quickly after casting, and it was an all-night job. Sometimes grids were made so as to collapse some little time after casting.

Moulding Sand

MR. R. S. YEOMANS (Salford) asked if a similar kind of sand were used for the mould as for the core, and, if so, how was it prepared for the particular purpose, and from where was the sand obtained.

MR. RIGBY thought that perhaps his answer might create a little surprise. The bottom part was made in floor sand; there was no facing sand. With the particular casting referred to in the lecture they dug out a hole, about 10 ft. square, to the required depth, then rammed it again with redeemed sand, or with sand put through a Royer. The body, or main part, was just floor sand. The top part was a facing sand of red sand and black sand and coal dust.

In a further reply to Mr. Yeomans. MR. RIGBY said that when the rough shape was cut out, and the strickles were in position, venting was done with a big needle wire, but not to any great extent.

MR. A. HOPWOOD (Liverpool) considered that the secret of success was in the digging out of the pit to the required depth when the cinder bed was put in, and then in the treading or ramming-up of the body of sand. It was obvious there should not be any rammers' scabs.

MR. RIGBY agreed. There were four points at which the strickles were used as gauges, for the rest the shape was graded from one to the other. There were templates of different sizes, and the men got quite used to it. Anyone visiting Bolton in the near future could see the particular casting of 30-in. and also one of 24 in.

Type of Metal

MR. A. HOPWOOD (Liverpool) asked what type of iron was to be preferred for that kind of work.

MR. RIGBY said his foundry used an ordinary grey iron. They had one or two grades of medium phosphorus Scotch pig-iron; no special precautions were taken.

MR. A. HOPWOOD (Liverpool) was interested to learn at what pressure the casting was tested.

MR. RIGBY could not answer the question offhand. That kind of thing was ascertained in the machine shop, and it depended upon the head of water. There was a very low pressure only, he believed, a 20-ft. fall.

MR. D. FLEMING (Manchester) asked if the foundry was very particular about the metal temperature for casting; if there were no special precautions against scabbing.

MR. RIGBY said the foundry liked to cast at as high a temperature as possible. They had never been troubled with respect to the metal.

THE PRESIDENT asked how many man-hours were taken up from the starting of the moulding to the finishing of the casting.

MR. RIGBY said that the time taken on the casting by two men would be anything between three and four weeks of 44 hours. That would represent 264 man-hours. Even if they did make a pattern and core box it would be of no use to the firm afterwards; that design might never be required again.

Loam Patterns

MR. COLLINGE (Bolton) said that years ago, at Preston, he found the core and the ends were made by building-up a loam thickness. He had himself produced various castings with wooden pipes in the clay method and the built-up core. He wondered if the job could be made in the way he had suggested (by building-up with the loam). He would also like to know why Mr. Rigby ran the job at the end, which he understood was the thickest section. Was there any scabbing effect? On pipes of a similar character, running the job at the thin end did normally make for good results, and, on the other hand, he had found that with casting at the thick section there was some shrinkage and scabbing.

MR. RIGBY said he had been expecting someone to mention a loam pattern. A foundry manager who had been visiting the works once told him he did not consider it practicable to make a pattern in clay. If one could use a sweep, and go right round the core, one could use loam to put on the thickness, but he did not see how one could get the thickness in a loam pat-

(*Concluded at the foot of Col.* 2, *Page* 367.)

Fuel Factors in Non-ferrous Fabrication*

By Leslie Aitchison, M.Sc., D.Met.

The simplest approach to the problem is to think in terms of installing new plant and equipment. If this method be adopted and the considerations appropriately displayed, the application of the conclusions to existing plant or its modification may be appreciated readily. The leading factors might be as follow:—

Speed of Working

This should be regarded from more than one angle. In the first place, it is almost always true that the exposure of metals to a gaseous atmosphere at high temperatures is detrimental to their quality. Where chemical processes are intended, as in the refining of molten metals, it may be essential to expose the material for a particular period, and this may be regarded as an exception to the rule. In plain melting processes, the exposure of molten metal to high temperatures, technically known as stewing, rarely does anything but harm; and in processes such as reheating or annealing it is rarely desirable to maintain the metal at an elevated temperature for any longer period than is necessary to ensure uniformity of temperature throughout the metallic mass. This rule does not apply to the precipitation heat treatment of alloys which produces internal structural changes in the metal that require time for their completion. Apart from the cases mentioned, there is a sound technical urge to employ furnaces and methods of heating that will keep the metal at a high temperature for the least possible period of time. There are other reasons for rapidity of working, however, the first being that it reduces the number of furnaces required, which in turn diminishes the initial capital expenditure. Additionally, radiation losses are usually proportional to time and, therefore, are lower in rapid working.

Flexibility of Operation

Many metallurgical operations require that a metal shall be heated to a specified temperature within a reasonable range of accuracy; and very rapid heating may not conduce to ease and accuracy in temperature control. Nevertheless, it is convenient to be able to heat the metal rapidly when it is charged cold, and then be able to diminish the rate of heating when approaching the specified temperature, thus permitting more precise control. A fuel and a furnace which allows heat to be pumped in rapidly at first and then shaded off is very attractive.

Simplicity of Furnaces

This requirement should be considered from every angle. The operation and control of the furnace, its maintenance in good condition, and ease of repair, all reflect on its running costs. They also reflect on the time lost for repairs and, consequently, on the number of furnaces required. In the long run, all these requirements are comprised in the need for sound and good furnace design; and it may be said at once that a furnace that is to use liquid fuel should be designed specifically for the purpose if the best results are to be obtained. A furnace originally intended for use with other fuels and then converted to burn liquid fuel is rarely completely satisfactory.

Cleanliness and Working Conditions

Since non-ferrous operations usually work at relatively low temperatures and process comparatively small quantities of metal per unit, they can be kept reasonably clean. Furnaces fired with solid fuel are a most usual source of dust and dirt, and ashes are a nuisance, but so are fumes, particularly to the operatives.

Badly designed furnaces can easily be exceedingly uncomfortable to the operatives, and designers should aim to reduce this discomfort to the minimum. Though the above considerations are mostly technical, particularly affecting operation and design, all of them have a bearing on the total cost of production; and in the long run the non-ferrous metallurgist will answer his fuel problem on the basis of total cost rather than on fuel cost. This being so, he is likely to weigh the following:

Cost of the Installation

Capital.—Under this heading it is necessary to include not only the furnaces themselves, but all ancillary plant. If furnaces are heated with producer gas, the cost of the producers and the gas mains must be included; if electricity is used, transformers and switchgear may be included; while with liquid fuels the necessary storage capacity and pipe lines, which may have to be protected from cold or even steam-jacketed, would arise. Ancillary plant and equipment, like the furnaces, need floor space or living room, which, in its turn, must be paid for.

Depreciation.—All furnaces wear out and need repair and replacement. Some may depreciate much more rapidly than others, and beyond the recognised rates.

Waste Heat.—The utilisation of waste heat, either by the employment of recuperators or by allowing the waste gases to raise steam or perform some other heating function, is always attractive provided it can be achieved without undue capital expenditure.

Keeping Furnaces in Commission during Stand-by Periods.—This does not arise in every kind of furnace, but when low frequency electric melting is employed, quite a considerable number of thermal units are expended simply in maintaining a bath of molten metal in preparation for the resumption of productive melting. With other fuels the cost is related, in a measure, to the rapidity with which the furnace can be brought back to working temperature.

Cost of Fuel per Unit of Metal Treated.—It has earlier been shown that fuel constitutes but a small item in the total cost of most non-ferrous metallurgical operations. Though it is difficult to obtain particularly reliable figures because of the multitude of variables, a survey made a little time ago showed that the

*Abstracted from a Paper presented to a Joint Conference on the "Modern Application of Liquid Fuels." The author is Professor of Industrial Metallurgy, The University of Birmingham.

Fuel Factors in Non-ferrous Practice

fuel cost in melting brass with different fuels was as follows:—

Coke: 19s. 9d. per ton of metal melted.
Fuel Oil: 26s. 6d. per ton of metal melted.
Creosote Pitch: 27s. 4d. per ton of metal melted.
Low Frequency Electric Melting: 14s. 0d. per ton of metal melted.

Corresponding figures for the reheating of brass billets for working were:—

Coal: 6s. per ton of metal reheated.
Fuel Oil: 7s. 3d. per ton of metal reheated.
Creosote Pitch: 6s. 3d. per ton of metal reheated.

Labour.—This is a precious commodity and a powerful component of total cost. It must be regarded not only in respect of direct working or operation, but in regard to ancillary operations—producers, storage, cleaning, maintenance, and throughput.

Availability of Fuel

Any metallurgist responsible for choosing a fuel for industrial operations will be greatly influenced by the conditions maintaining in regard to supplies of the fuel selected. Ideally he would wish to be sure he could always obtain this fuel on demand, in the quantities he required, and be sure that the supplies he received would be regular, uniform and reliable in quality. Any undertaking called on to stock large quantities of fuel against contingencies is necessarily incurring a cost through financing such stock; but if this stock is liable to deterioration whilst on the premises, yet another cost is incurred. Additionally, space for the stock must be provided, which is a third item in total cost, and a fourth item is that involved in handling the stock. All these different cost factors have to be weighed, and there is little doubt that they, together with the other considerations advanced in this section, exercise a considerable influence on the choice of an industrial fuel.

The selection of the fuel is therefore intimately bound up with that of the furnace and the working conditions. In view of previous remarks, it seems unlikely that one fuel can always be regarded as better than another, and though in one case it may be, in another set of conditions and circumstances it certainly is not.

A great deal yet remains to be done in bringing the use of fuel in non-ferrous manufacturing operations to a state that can be regarded as reasonably satisfactory. The difference between the consumptions indicated by theory and those achieved in practice can well be seen from the figures in Table I. The figures are only concerned with melting different kinds of non-ferrous materials, and the values which might be taken as an acceptable practical consumption are based on a wide survey of industrial practice. The disparity between theory and practice is enormous, except for electric melting; but it must not be forgotten that the consumption figure quoted for electricity is the consumption at the furnace, and that, because of generation factors, the real fuel consumption in terms of solid fuel is five times as high as the apparent figure.

The figures given for acceptable fuel consumption are necessarily a personal expression. No absolute figures could be quoted as generally applicable because the manufacturing conditions vary so considerably from one factory to another. Differences in furnace design and size of charge particularly affect consumptions; but the values included in Table I have been reached after a careful survey of the records available in the industries dealt with in this paper. In that review the effect of the operating conditions has been estimated as completely as possible.

TABLE I.—*Melting Data for Non-ferrous Alloys.*

Metal.	Fuel.	Mean calorific value.	Theoretical consumption, therms.	Theoretical quantity of fuel per ton of metal	Present acceptable consumption per ton of metal.
Copper	Coke	291 therms per ton	7.08	0·0243 tons	0.20 tons (coal
60/40 brass			5.92	0.0203 ,,	0.23 ,, (coke)
70/30 brass			6.16	0.0211 ,,	0.26 ,, ,,
Aluminium alloy			10.90	0.0375 ,,	0.26 ,, ,,
Copper	Fuel oil	1.76 therms per gallon or 424 therms per ton	7.08	4.02 gals.	35 gals.
60/40 brass			5·92	3.36 ,,	20 ,,
70/30 brass			6.16	3.50 ,,	24 ,,
Aluminium alloy			10.90	6.19 ,,	28 ,,
Copper	Creosote pitch	348 therms per ton	7.08	0.020 tons	0.27 tons
60/40 brass			5.92	0.017 ,,	0.20 ,,
70/30 brass			6.16	0.018 ,,	0.23 ,,
Aluminium alloy			10.90	0.031 ,,	—
Copper	Town's gas	1 therm per 222.2 cubic feet	7.08	1,573 cub. ft.	—
60/40 brass			5.92	1,315 ,,	9,500 cub. ft.
70/30 brass			6.16	1,368 ,,	—
Aluminium alloy			10.90	2,421 ,,	7.100 ,,
Copper	Electricity	0.034 therms per kWh.	7.08	208 kWh.	—
60/40 brass			5.92	174 ,,	210 kWh.
70/30 brass			6.16	181 ,,	250 ,,
Aluminium alloy			10.90	320 ,,	400 ,,

* Large unit.

Correspondence

[We accept no responsibility for the statements made or the opinions expressed by our correspondents.]

DIMENSIONAL TOLERANCES

To the Editor of the FOUNDRY TRADE JOURNAL

SIR,—Your comments in the issue of September 23 appear to be very sound, and it is interesting to note that this subject is receiving wide publicity, and attention. Surely the castings referred to are those machined in special purpose tools! The foundries' responsibilities do not end until the casting is finished, and in use, and while in the past foundries have not taken excessive machining too seriously, in these days of large quantities and special machines they cannot now evade them.

Machine-shop experience gives one alarming instances of a whole line of machines out of action due to excessive machining, chills and flash not ground away, resulting in gang milling machines, boring machines, and other special-purpose machines being wrecked. On general-purpose machines these evils are serious, and cause extra machining costs, but nothing comparable with special machines. The writer has memories of flywheels up to 12 ft. diameter with swells, scabs, and runners and risers not fettled, which entailed days of extra machining time, and only by co-operation and the acceptance of responsibilities will these evils be eliminated.

The writer has on several occasions at Institute meetings expressed the point that the foundry should be paid for quality, and that this is cheaper in the end for the machine shops. With reference to jig location, the motor cylinder is perhaps one of the best and earliest instances of this need, and its development is creditable to the designers, foundries and machinists. If records of the Institute do not give examples in detail it would serve a very useful purpose if someone engaged in this particular branch of foundrywork would give a Paper.

Some years ago the writer had to investigate machine shop complaints to the foundry, and found in many cases the troubles were due to jigging being done on joints, or on the part of the casting formed by cores, and even where ingates and risers were ground off. This resulted always in the supply to the jig and tool design department of one of the first sample castings, together with advice as to where not to put jigging spots.

Yours, etc.,
G. W. BROWN.

162, Wheelers Lane,
King's Heath,
Birmingham, 14.

House Organs

Sif-Tips, Vol. 12, No. 64, contains, amongst accounts of general repair work, notes on the welding of zinc-base die castings. A number of such castings are listed and sketched and detailed procedures are given for their treatment. It should be of interest to makers of such castings to learn about their failures in service, though these may well be the result of mishandling. The rest of this booklet maintains its practical interest for jobbing welders.

Pearlite and Wearing Qualities

(*Contribution to the discussion of the Paper by H. Laplanche entitled "The Maurer Diagram and its Evolution" and "A New Structural Diagram for Cast Iron," printed in the* JOURNAL, *August* 26, *September* 2 *and* 9.")

Mr. H. J. Young (member) wrote that this Paper contains a point of much practical value and one which, as evidence, would have been a deciding factor in arguments concerning Patents several times in the past 25 years. The matter may be put thus: In this country it has been the custom to speak loosely of "pearlitic" cast iron or of iron "subtantially or mainly pearlitic" and to avoid admitting the existence of all-pearlitic or completely pearlitic iron as an identifiable entity. Mr. Laplanche makes no bones about it. He publishes Fig. 4 as "completely pearlitic"; Fig. 5 as "pearlitic with traces of free ferrite"; and Fig. 6 as "pearlitic with some free cementite." The writer has manufactured tens of thousands of castings held daily to a structure between Fig. 4 as the minimum (actually also the maximum) of pearlite, and Fig. 6 as a maximum of free cementite; any traces of free ferrite, Fig. 5, spelling either rejection or a degraded product.

He would like to ask Mr. Laplanche how far he agreed with his (the writer's) experience that, (*a*), each composition of grey iron wears best when all pearlitic; (*b*), each composition when all-pearlitic has its own wearing-rate which may be better or worse than that of some other composition when all-pearlitic; and (*c*), graphite size and arrangement are affected by mass action, by the vicinity of cooling surfaces, by dendritic matrix, and by traces of ferrite, thereby rendering it doubtful whether it would be possible, given a thousand photomicrographs of graphite, to tell the approximate wearing qualities of the thousand cast irons concerned, whereas it *would be* feasible from an examination of their general structures.

THE JOURNAL OF THE INDIA SOCIETY OF ENGINEERS has been replaced by a new publication "Science and Engineering." The main article is on Rayon manufacture; it runs to about eight pages, yet it starts in the middle of a page. The appearance of the magazine could be materially improved by more attention being paid to lay-out.

Making a Turbine Casing (*from p.* 364)

tern. As to the running at the thick end, by this method. after casting for a few seconds, the runners were delivering into a pool of metal. By running at the small end the metal was flowing away all the time, which might have some tendency to cause scabbing.

Vote of Thanks

MR. W. M. LORD (Burnley) moved that a Vote of Thanks be accorded to Mr. Rigby for his interesting communication. There had been an excellent account of real craftsmanship, and there would be but comparatively few moulders and founders who would care to undertake such a job and with such miscellaneous tackle as had been described.

Midland Foundry Training Centre

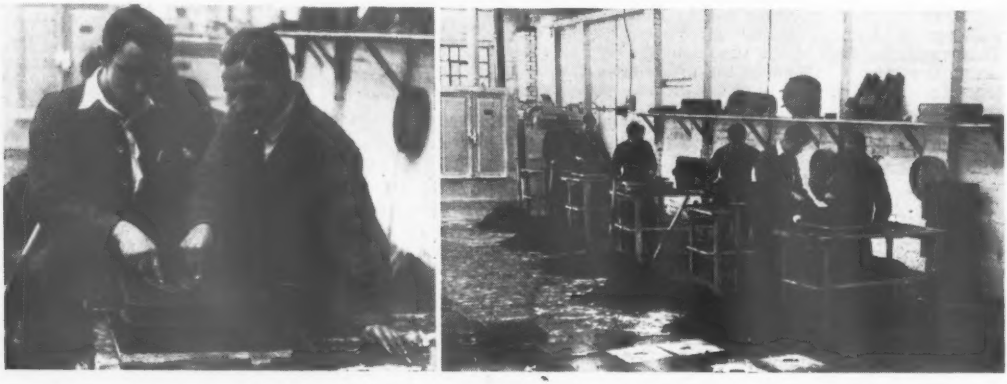
Opening Ceremony at Rudge, Littley, Limited, West Bromwich

It has long been realised that, in many foundries, it is impracticable to provide training for foundry apprentices which will give them the all-round experience required to make fully qualified moulders. Teaching men to work accurately and skilfully on intricate and large castings and loam work is necessary if Britain is to maintain the flow of high-quality castings to the engineering industry and other markets. To help fulfil this want, the West Midland Foundry Advisory Committee (of which Mr. D. Howard Wood is the chairman) has established the first foundry craftsmanship training centre in Britain to come under the ægis of the Council of Ironfoundry Associations. The opening ceremony by Mr. Fitzherbert Wright, president of the Joint Iron Council, took place last week at the works of Rudge, Littley, Limited, Swan Village, West Bromwich, in which the centre is housed. Trainees are receiving tuition from a skilled instructor who is working in collaboration with a management committee elected from the Advisory Committee.

Modern plant and equipment is installed, most of which is on permanent loan from various manufacturers. Equipment includes a 15-cwt. cupolette, a Korex core stove, a Mulbaro sand-treatment plant, a double-ended grinder, two coke-fired heating stoves, and attendant ladles, shanks, moulding boxes, etc. Intensive training in craftsmanship and citizenship is provided for 12 to 14 apprentices or trainees for terms of four weeks at intervals of nine months. The syllabus embraces both ferrous and non-ferrous foundry techniques, and includes sand mixing and conditioning, coremaking and assembly, bench and floor moulding, green and dry sand work, use of denseners and chills, drawbacks and oddsides, melting, pouring, fettling, etc. There will be talks, film strips, and instruction on free-hand sketching and elementary projection to enable boys to understand simple drawings. Emphasis is on practical training rather than lectures and educational studies.

The next four-week course will commence on November 8. Applications for trainees to participate should be sent immediately to Mr. R. Forbes-Baird, 117, Church Lane, Handsworth Wood, Birmingham, 20. Intensive craftsmanship training is given by a skilled instructor, and all foundry trainees, juvenile or senior, are eligible.

At the luncheon prior to the opening, Mr. J. H. Jones, M.P., Joint Parliamentary Secretary to the Ministry of Supply, applauding the training scheme, said that the foundry industry was very near and very "dear" to the iron and steel industry, and foundries had long suffered from a dearth of apprentices. It was important that the centre should be a success and provide an example to the rest of the industry; it was essential to have good training to become a good craftsman and a good citizen. Sir Peter Bennett, a member of the Joint Anglo-American Committee on Production, also spoke, while Mr. Fitzherbert Wright paid tribute to Rudge, Littley, Limited, for providing the accommodation, which now housed plant, installed as gifts, to the value of about £2,000. At the opening ceremony, Mr. Fitzherbert Wright and Mr. Jack Jones, M.P., successfully cast a small plaque in cast iron to commemorate the occasion, after which Mr. Jones and the Mayor of West Bromwich addressed the trainees.



ILLUSTRATED ABOVE (LEFT) IS THE INSTRUCTOR DEMONSTRATING A DETAIL OF PROCEDURE TO ONE OF THE STUDENTS, AND (RIGHT) A GENERAL VIEW OF THE CENTRE WITH STUDENTS AT THEIR WORK-BENCHES.

Provisions of New Factories Act

Medical Supervision of Young People

Most of the provisions of the new Factories Act came into force on October 1. In future, a person who proposes to use any premises as a factory must notify the District Inspector of Factories in writing at least a month in advance. Hitherto, one could start a factory and not tell the Inspector until a month later. The requirement applies not only to a person taking new premises but also, for instance, to a shopkeeper who proposes to use his premises or part of them for purposes which would make the place a factory. The notice must give the name of the occupier or title of the firm, the postal address of the factory, the name of the borough or district council (in Scotland, the burgh or county council, and indicate the nature of the work, and whether mechanical power is to be used (except for heating, ventilating or lighting part of the factory) and, if so, its nature (*e.g.*, electric, steam, gas or oil). Similarly, at least a month's notice must in future be given before mechanical power is first used in any factory.

In future, when a youth or girl under 18 is taken into any employment in a factory, he or she may not remain in that job for more than a fortnight unless certified fit for it by a doctor appointed by the Factory Department. Hitherto, this requirement has only applied to boys and girls under 16. The requirement does not apply to young people over 16 already employed in a factory on October 1, 1948, so long as they remain in the same employment. The requirements are extended to cover employments in building and civil engineering, and to cover not only employment in shipbuilding yards, but also employment in repairing, refitting, painting and certain other work on ships in harbour or wet dock.

The Minister of Labour has revised the Young Persons (Certificate of Fitness) Rules under the Factories Act (which prescribe the procedure for obtaining certificates, etc.) in view of the changes made by the new Act. The new Rules (S.I. 1948, No. 2162) can be obtained from H.M. Stationery Office or through any bookseller, price 1d. The Minister has also made a new Order (The Young Persons (Certificates of Fitness) (Prescribed Period) Order, 1948—S.I. 1948, No. 2163, price 1d.), prescribing the period of a fortnight mentioned above, and Regulations (The Factories Acts (Certificates of Fitness of Young Persons) (Adaptation) Regulations, 1948—S.I. 1948, No. 2161, price 1d.), for the reckoning of that period in the case of employments in building or civil engineering or in the work on ships referred to above.

Additional Obligations

Owners of buildings partly let off as factories will now have some additional obligations concerning lifting machines, lifting tackle, steam plant and air receivers not belonging to the factory occupiers and situated in parts of the building outside the actual factory or factories, but used for factory purposes. They will also, like factory firms, have to keep registers containing certain particulars as to matters for which they are responsible under the Acts. There are some amendments in the precautions required where, in a factory, people have to enter tanks, pits, pipes or other confined spaces in which they may be overcome by fumes or lack of proper air. There are also miscellaneous amendments intended to remove doubts which have arisen as to the interpretation of various provisions of the Act of 1937.

Obituary

MR. JOHN M'COAG, formerly of Fairfield Shipbuilding & Engineering Company, Limited, Glasgow, has died at the age of 85.

MR. ALEXANDER GILLAN, late of Redpath, Brown & Company, Limited, structural engineers, etc., of Edinburgh, died in hospital on October 3.

MR. ARTHUR J. TAYLOR, joint managing director of Taylor Bros. (Sandiacre), Limited, railway engineers and ironfounders, of Nottingham, died last week after a short illness.

MR. JOSEPH FAWKNER BUTLER, managing director of the British Reinforced Concrete Engineering Company, Limited, Stafford, has died at the age of 69. He had been with the company since its inception 40 years ago.

MR. FRANCIS JOHN F. CURTIS, who died on October 3 at the age of 72, was a director of Thomas Green & Son, Limited, horticultural and traction engineers, etc., of Leeds. He was also on the board of the Dearne Valley Colliery Company, Limited, Barnsley.

SIR ARTHUR WHITTEN-BROWN, general manager of the Swansea office of the Metropolitan-Vickers Electrical Company, Limited, has died at his home at the age of 62. In 1919 Sir Arthur, with the late Sir John Alcock, made the first direct flight across the Atlantic from America to Europe.

MR. SIDNEY GARCKE, who was a pioneer of the motor movement, died at his home at Hove on October 3. He was 63. Mr. Garcke was chairman of Dennis Bros., Limited, Guildford, Surrey, the Eastwoods group of cement companies and a director of several other companies. He was also a member of the Institution of Mechanical Engineers.

MR. WILLIAM REED, a director of Smith's Dock Company, Limited, South Bank, Middlesbrough, died last week. He retired in January, 1945, from his position of general manager of the yard, which he had held for 33 years. After his retirement Mr. Reed became the firm's consulting naval architect. He was well known in the shipping world as the designer of the corvette. He was also a director of the Tyne Metal Company, Limited. Mr. Reed was 73 years of age.

SCRAP METAL, etc., will be offered for sale at a Ministry of Supply auction sale at M.O.S. Depot 121, Ashchurch, Gloucester, on October 22. Catalogues of the sale, price 6d., may be obtained from the auctioneers, Bruton Knowles & Company, King Street, Gloucester.

News in Brief

AN ORDER FOR 59 long-distance Diesel coaches, costing over £270,000, has been placed with Leyland Motors, Limited, for the Argentine.

A £400,000-CONTRACT for equipment for the barrage to be built at Kotri, on the River Indus, Pakistan, has been secured by Ransomes & Rapier, Limited, Ipswich.

A NEW WAREHOUSE for the storage of non-ferrous metals and cement has been put into use at the Birmingham (Lawley Street) Goods Station of British Railways.

ABOUT 120 industrial and professional workers from overseas will have visited Britain before the end of 1948 under the British Council's short-term bursary scheme.

THE OVERSEAS DIRECTORATE of the Federation of British Industries is now at 41, Buckingham Palace Road, London, S.W.1. The telephone number is unchanged (Whitehall 6711).

COVERING 25,000 SQ. FT., the new offices of John Thompson Water Tube Boilers, Limited, Wolverhampton,were opened on October 1 by Mr. J. Hacking, deputy chairman (operating) of the British Electricity Authority.

IT IS REPORTED from Amsterdam that several manufacturers have founded there the N.V. Co-operating Engine Manufacturers with a share capital of Fls. 1½ million, consisting of 20 priority and 1,480 common shares of Fls. 1,000 each.

THE NEWCASTLE-UPON-TYNE branch of Cox & Danks, Limited, iron and steel scrap producers, etc., has taken over larger premises at Commercial Union Buildings, 47, Pilgrim Street. The telephone number (Newcastle 20685) is unchanged.

HIND ELECTRIC & GENERAL STORES, Amar Market, Johri Bazar, Agra, India, wishes to contact U.K. manufacturers interested in exporting switchgear, electric motors, cycles and cycle parts to India. Firms interested should contact the company direct.

EMPLOYEES OF Follsain Metals, Limited, and its subsidiary, Wycliffe Foundry & Engineering Company, Limited, of Lutterworth, near Rugby, travelled by a special train for their outing to London on October 2. They were guests of the company at dinner.

EIRE IMPORTED 80 tons of pig-iron, valued at £1,960, in July, against 572 tons (valued at £17,171) in July, 1947. The total for the seven months of this year is 1,951 tons, valued at £42,793, which compares with 2,094 tons (£30,256) in the corresponding period of 1947.

IN ORDER TO COPE with the large number of orders on hand, Thos. W. Ward, Limited, is developing a new wharf in Devonshire Dock, Barrow, in addition to that now existing in the Anchor Line Basin, Ramsden Dock. A 6-ton travelling crane is being installed at the new wharf.

THE NORTHERN ALUMINIUM COMPANY, LIMITED, is opening a new sales office, under the management of Mr. F. Layton, at 27, Park Row, Leeds, 1. The territory will include Lincolnshire, Yorkshire (with the exception of Middlesbrough), and Rutland. The company's Newcastle office is now in charge of Mr. D. M. Eadie.

A NEW RANGE of single-deck omnibuses of integral construction, with the engine mounted below floor level, is to be produced for the home and export markets as the result of an agreement between Leyland Motors, Limited, the Metropolitan-Cammell Carriage & Wagon Company, Limited, and Weymanns, Limited. Production is expected to commence early next year.

AT A MEETING of the North Midland Regional Board for Industry at Nottingham, Mr. S. D. Morton (Regional Controller, Ministry of Labour) stated that men were still being recruited for the ironfounding industry from other regions. Sixty had recently been accepted from Scotland and Northern Ireland and a few more Italian foundry workers had arrived in July and August.

THE FINANCIAL YEAR of Trojan (Holdings), Limited, is to be extended from August 14, 1948, to October 31, 1948. The directors state that the period of redevelopment of Trojan, Limited (manufacturers of commercial vehicles, petrol engines, etc., of Croydon), is now approaching its end. During this period a trading loss was inevitably incurred, but output and turnover are now steadily increasing.

SEVENTY-FIVE PER CENT. of the total production of British-made angledozers for "Caterpillar" D7 and D8 Diesel tractors is being distributed by Jack Olding & Company, Limited, from centres in Hatfield (Herts) and Coupar Angus (Scotland). The angledozers are manufactured by the Birtley Company, Limited, Gateshead-on-Tyne, by arrangement with the Caterpillar Tractor Company, Illinois, U.S.

SIX EMPLOYEES of the Bryan Donkin Company, Limited, gasworks plant engineers, etc., of Chesterfield, with service varying between 63 and 50 years, received presentations recently. Awards were also made to 38 workers with between 40 and 48 years' service. The presentations were made by Mr. G. Clark, chairman, who himself received an award in recognition of his 55 years' service with the company.

WHILE REMOVING the lid of a wooden packing-case at Modern Foundries, Limited, Halifax, workmen discovered what was thought to be a mine. The case was one of about 50 empty ones bought by the firm. However, it was later found to be quite harmless. It was apparently an anti-submarine dome for use in the defence of shipping against submarine attack, and did not contain any explosive material.

THE FIRST EXHIBITION of the work of Royal Designers for Industry will be opened at the Royal Academy on October 26. Sponsored by the Royal Society of Arts and the Council of Industrial Design, it is intended to be a forerunner to the centenary celebrations of the Great Exhibition of 1851 by stimulating now the production of British goods of outstanding design in time to be shown to the world during the 1951 Festival of Britain.

IRISH FOUNDRIES has been registered in Dublin as a private company with a nominal capital of £100,000 in ordinary shares of £1 each. The company proposes to

carry on the businesses of ironfounders and iron-masters, and manufacturers of baths, cisterns and metal water containers of all kinds. The first directors are:—Mr. W. S. Corrie, Mr. T. H. Corrie, Mr. R. W. Cashell, Mr. G. McKenzie Black, Mr. H. C. Sargent and Mr. G. Krentzer.

J. A. PHILLIPS & COMPANY, LIMITED, Smethwick (a member of Tube Investments' cycle division), announced last week that £500,000 worth of orders for 79,000 bicycles had been placed during the previous week. "The orders have come from all over the world. Providing steel can be made available in ample measure, we shall go a long way towards securing this valuable exchange for the country," said Mr. T. J. Boulstridge, the managing director.

IT IS REPORTED that Colvilles, Limited, has asked the Ministry of Works to move out of the parts of Mossend Steel Works which it uses for storage. It is stated that the decision has nothing to do with the international crisis. Soon after the war the works closed down, except for small portions used for storage and allotted to a branch of the Colville Constructional Company, Limited (a subsidiary of Colvilles, Limited), which was transferred from Glengarnock.

THE DIRECTORS OF Bennis Combustion, Limited, Bolton, announce that the company acquired the Saxon Engineering Company, Limited, Stoke-on-Trent, last month. The Saxon Engineering Company was placed in voluntary liquidation and a new company of the same name has been formed to carry on its business. It is understood that the acquisition, which will expand the business in the manufacture of coal and coke cleaning and recovery plant, will be financed out of the company's own resources.

OVER 500 EMPLOYEES of Hattersley & Davidson, Limited, manufacturing engineers, of Sheffield, and its associated companies, Robert Sorby & Sons, Limited, tool manufacturers, of Sheffield, and the Wormald Patent Locks Company, Limited, Sheffield, met recently to celebrate the 60th anniversary of Hattersley & Davidson, the 25th anniversary of the company's association with Robert Sorby & Sons, and the 52nd anniversary of the incorporation of the Wormald Patent Locks Company. Mr. James Muscroft, scythe maker of Robert Sorby & Sons, received a presentation in recognition of his 60 years' service with the company.

COMMENTING ON the fact that the company has probably as much work on hand at present as at any time in the past, the "North British News," the house journal of the North British Locomotive Company, Limited, Glasgow, states that since the end of the war British locomotive builders have had almost unrestricted command of the world's locomotive industry, but now the situation is changing. The industry on the Continent is gradually reviving and in order not to be entirely dependent on the vagaries of the main-line locomotive market, the directors of the company are seeking to establish new activities. Among these there are Diesel locomotives for underground traction in mines and machine tools, which are already being developed.

Iron and Steel Board Dissolved

Supply Ministry to Carry On its Work

The announcement of the dissolution of the Iron and Steel Board came as no surprise. The Ministry of Supply stated: "The members of the Iron and Steel Board were appointed until October 1 of this year. The Minister of Supply invited them to serve a further year, but with the exception of the trade union members, they have told him that in the changed circumstances likely in their view to arise from the Government's proposals for bringing sections of the iron and steel industry under public ownership, they are not willing to continue on the Board after they have completed their work on the outstanding major problems on which they are now engaged, and which they anticipate can be completed by the end of the year.

"The Government is taking the necessary steps for the Ministry of Supply to carry on the work of the Board after the resignations take effect."

It is believed that no advisory body of any kind will replace the Iron and Steel Board, but the Board's staff and secretary, Mr. A. C. Boddis, will continue the work of the Board as part of the Ministry of Supply. The members of the Board will continue to meet from time to time up to the end of the year. The chief responsibility of the Iron and Steel Board has been the review and supervision of the steel capital development programme drawn up by the British Iron and Steel Federation in 1945, and this work has been accomplished. The Board has also supervised the industry in current matters, including raw material requirements, and advised on general price policy and on the fixing of prices for controlled products.

Terms of Reference

While the terms of reference of the Board were drafted to ensure that it would have no responsibility for and no part in preparations for the nationalisation of the industry, it is generally believed that it had been hoped in Government circles that the Board would continue to function until vesting day and that some of its personnel might remain in office after nationalisation.

Sir Archibald Forbes has acted as chairman of the Iron and Steel Board. He was formerly of Thomson McLintock & Company and Spillers, Limited. He received £8,500 a year. The remaining members were entitled to £1,000 a year for part-time services, although not all of them accepted payment.

Representing the steel industry were Mr. G. H. Latham, chairman and managing director of the Whitehead Iron & Steel Company, Limited, and Mr. R. Mather, who held the same position in the Skinningrove Iron Company, Limited. The two independent members were Sir Wilfrid Ayre, chairman of the Burntisland Shipbuilding Company, Limited, and Sir Alan Barlow, formerly second secretary to the Treasury. In addition, there were two members representing the trade unions —Mr. Lincoln Evans, secretary of the Iron and Steel Trades Confederation, and Mr. Ambrose Callighan, president of the National Union of Blastfurnacemen, Ore Miners, Coke Workers and Kindred Trades.

Anglo-American Agreement on Scrap

United Kingdom's Share

The Foreign Office has announced that Anglo-American agreement on the export of ferrous scrap from Germany has been reached in an exchange of letters between Sir Oliver Franks, British Ambassador, and Mr. Robert Lovett, U.S. Under-Secretary of State, in Washington. Members of the Organisation for European Economic Recovery will be asked to establish in Paris an *ad hoc* committee of their representatives with the U.S. as a full member, outside the jurisdiction of O.E.E.C., but working in close co-operation. It will recommend to O.E.E.C. governments the distribution of scrap exports from those countries.

The American and British military governors will be instructed to obtain maximum collection and export of scrap from the bizonal area. Besides existing authorisations, confirmed by the agreement, of 200,000 tons to the United States, 300,000 tons to the United Kingdom, and 100,000 tons to other countries, America will get another 100,000 tons to equal the U.K. share. Britain will receive 75,000 tons more as a final shipment of booty scrap, without payment, and America a similar amount, but not free. The military governors will be asked to implement those authorisations immediately.

Interim Allocations

It is hoped that scrap exports from the bizonal area in the year to October 1 next will be 1,000,000 tons or more over and above the 850,000 tons now authorised. To be charged against future allocations there will also be authorised another 125,000 tons each to the U.S. and U.K., and a similar quantity to other countries. If the *ad hoc* committee makes no recommendations before October 31, 1948, further interim allocations will be made on that date and on the last day of each month in the ratio of 2-2-1 for the U.S., U.K. and other countries until the regular procedure operates. The American and British military governors will determine, *inter alia*, whether to implement allocations by control over contracts or exports, or both. The 75,000 tons of booty scrap authorised in the agreement will be the last to be exported in that category.

All foreign buyers will pay a uniform price for the same type of scrap from the same loading place, as fixed by the military governors from time to time. The governors may also approve special measures for recovering scrap if they think that enough cannot be obtained otherwise. Non-German organisations may recover scrap from disarmament and other sources not readily accessible to German merchants, so long as the American and British military governors approve, the established prices are paid, and the recoveries are within the allocations determined.

New Patents

The following list of Patent Specifications accepted has been taken from the "Official Journal (Patents)." Printed copies of the full Specifications may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, price 1s. each. The numbers given are those under which the Specifications will be printed, and all subsequent proceedings will be taken.

601,738 Soc. d'Electricite de Paris. Refractory mastic for assembly of metallic parts.
601,755 Guy Motors, Limited, and Woodward, W. E. Treatment of alloy steel articles.
601,799 Naamlooze Vennootschap Machinefabriek du Croo & Brauns. Process and apparatus for bending girders and beams.
601,813 Bradbury, T. F., and Warrington, H. G. Extruded aluminium base alloys.
601,825 Suchy, K. T. Process for the electroplating of aluminium or aluminium alloy.
601,890 Wills, M. A. A. Means for establishing the hardness of metal surfaces.
601,968 Dehn, F. B. (Monolith Portland Midwest Company). Extraction of alumina from its ores.
601,972 Great Lakes Steel Corporation. Steel or metal beams.
601,975 Akt.-Ges. der Eisen-und Stahlwerke Vorm. G. Fischer. Production of high-strength malleable-iron alloy castings.
602,023 Metals Disintegrating Company, Inc. Metal and metal-alloy powders.
602,071 Callebaut, L. E. Metal shearing machines.
602,087 Aktiebolaget Fr. Ramstrom. Plate shearing machines.
602,095 Budd Manufacturing Company, E. G. Method of and apparatus for indicating the condition of welds.
602,111 Morane, R., and Martinet, R. Process and apparatus for the manufacture of metal grains, pellets or the like.
602,276 Reynolds, R. S. Composite aluminium-alloy sheets.
602,438 Montgomery, A. B. Rolling mill.
602,591 Du Pont de Nemours & Company, E. I., and Hoffman, R. A. Electro-deposition of metals.
602,613 Foundry Services, Limited, and Strauss, K. Degassing and grain refining of metals.
602,670 Ryberg, J. P. M. Heat-treatment of refractory arches for furnaces.
602,720 Sankey & Sons, Limited, J., and Perry, A. J. Machines for rolling sheet-metal sections.
602,810 Soc. Anon. J. Cockerill. Method of obtaining a variety of metallic sections especially suited to welded structures.
602,857 Mallory Metallurgical Products, Limited. Overlay metals of aluminium or aluminium base alloy bonded to an iron group metal, or metal base alloy.
602,894 British Insulated Callender's Cables, Limited, and Grieve, G. T. W. Extrusion of lead.
602,895 Fourmanoit, J. C. Refractory substances.
602,910 Dominion Magnesium, Limited. Removing manganese from calcium.

Company News

(Figures for previous year in brackets.)

Morphy-Richards—Dividend of 160% (same).

G. Hopkins & Sons—Interim dividend of 6% (same).

G. D. Peters & Company—Interim dividend of 7½% (same).

Cornercroft—Final dividend of 9%, making 15% (same).

John Summers & Sons—Interim dividend of 2½% (same).

Sanderson Bros. & Newbould—Interim dividend of 5% (same).

Sheepbridge Company—Interim dividend of 3%, tax free (same).

Manganese Bronze & Brass Company—Interim dividend of 10% (same).

Thos. Firth & John Brown—Interim dividend of 2½%, tax free (same).

Expert Tool & Case Hardening Company—Interim dividend of 15% (same).

Sturtevant Engineering Company—Interim dividend of 5½%, tax free (same).

Braithwaite & Company Engineers—Final dividend of 3½%, making 7½% (same).

W. T. Henley's Telegraph Works Company—Interim dividend of 5% (same).

British United Shoe Machinery Company—Interim dividend of 6%, tax free (same).

H. W. Lindop & Sons—Final dividend of 35% on increased capital, making 70% (50%).

Wombwell Foundry & Engineering Company—Final dividend of 11½%, making 17½% (same).

Superheater Company—Interim dividend of 20% (same) on the ordinary and "A" ordinary shares.

Hughes-Johnson Stampings—Final dividend of 12½% (7½%), making 20% (15% and capital distribution of 4½%).

Electrolytic Zinc Company of Australasia—Final dividend of 9% on the preference and ordinary shares (9% and bonus of 2½%), making 15% (17½%).

Dowty Equipment—Final dividend of 3% (7%), tax free, making 13%, tax free (same); interim dividend for the current year of 10%, tax free (same).

Expanded Metal Company—Interim dividend of 7½% in respect of 1948. (For 1947 two 4% interim dividends were followed by a final dividend of 14½%.)

Aston Construction Company—Dividend on the 7% cumulative preference shares for the year ended September 30, 1948, is passed. (Dividend paid to September 30, 1945.)

E. Chalmers & Company—Trading profit to August 31, before tax, £97,184 (£94.857); to tax, £54,000 (£54,378); general reserve, £15,000 (£20,000); final dividend of 30%, making 40% (same); forward, £27,920 (£12,514).

Neepsend Steel & Tool Corporation—Net revenue for the year ended March 31, £111,854 (£110,906); final dividend of 9d. per 5s. unit, making 1s. 6d., plus bonus of 1s. (same); additional dividend of 4% on preference shares (same); general reserve, £25,000 (same); forward, £25,335 (£24,301).

Wolverhampton Die-Casting Company—Trading profit to June 30, £89,733 (£53,049 after E.P.T.); rents, £63 (£178); to depreciation, £22,823 (£13,981); auditor's remuneration, £263 (same); leaving £66,710 (£38,983); tax reserve no longer required, £2,835 (nil); to tax, £39,356 (£19,363); preference dividend, £1,947 (same); final ordinary dividend of 7½% (10%), making 15% (same); forward, £70,628 (£46,510).

Tata Iron & Steel Company—Disposable profits to March 31, after taxes, bonus to employees and Rs. 1,50,00,000 for depreciation, Rs. 1,58,54,822 (Rs. 1,86,29,594); to dividend on first preference Rs. 4,50,000 (same); second preference, Rs. 52,03,642 (same); ordinary, Rs. 14 per share (Rs. 19); deferred, Rs. 64-15-0 per share (Rs. 100-13-4); forward, Rs. 21,35,555 (Rs. 14,10,327). Aggregate of Rs. 94,55 lakhs E.P.T. relief, etc., has been placed to reserve.

Peter Brotherhood—Trading, etc., profit to March 31, £236,648; to directors' remuneration, £25,628; former directors' pensions, £1,550; audit, £850; depreciation and renewals, £33,778; tax, £99,325; net profit, £75,517 (£28,950); provisions not required, £30,145 (nil); to amount written off drawings and patterns, £12,364; fixed assets replacement, £50,000; general reserve, £10,000; preference dividend, £4,991 (same); ordinary dividend of 20% (same); forward, £159,742 (£150,685).

Aeronautical & General Instruments—Consolidated trading profit to March 31, 1948, after all expenses and management charges, £53,196; fees £82; to directors' fees, £900; directors' salaries, £5,475; auditors' fees, £1,308; depreciation, £5,520; leaving £40,075; balance brought in from subsidiaries prior to acquisition, £1,319; from group, £13,170; to tax, £7,492; reserve for future tax, £15,100; capital increase expenses, etc., £3,187; capital reserve, £1,429; ordinary dividends, £6,600; preference dividend, £3,712; forward, £17,044.

Qualcast—Consolidated profits to June 30, after trading expenses, £446,225 (£347,290); interest received, £1,983 (£1,237); to depreciation, £66,994 (£48,887); pensions, £6,733 (£5,977); audit, £1,777 (£1,540); past directors' pensions, £500 (same); directors' remuneration, £51,975 (£42,542); profit, £320,229 (£249,081); to tax, £186,142 (£159,880); tax overprovisions, £9,550 (nil); making £143,637 (£89,201), which is carried to Qualcast appropriation account; final dividend of 40%, making 60% (same); to general reserve, £81,659 (£20,000); forward, £60,250 (£57,233).

George Wilson Gas Meters—Trading profit plus investment income for the year ended March 31, £34,262 (£55,723); to depreciation, £3,360 (£3,546); cost of removing stocks, etc., £924 (nil); directors' emoluments, £9,723 (£12,519); profit, subject to tax, £20,255 (£39,658); war damage recoveries, £5,072 (nil); unrequired reserves, £1,206 (£5,000); available, £32,425 (£49,742); to tax, £12,500 (£22,000); written off goodwill, nil (£2,000); investment reserve, nil (£3,212); deferred repairs reserve, nil (£5,000); stock reserve, £6,000 (nil); dividend of 15% (same); forward, £5,787 (£5,892).

Hurst, Nelson & Company—Consolidated trading profit to July 17, £138,737 (£191,431); other income, £33,032 (£54,601); to depreciation, £16,882 (£27,813); deferred repairs, nil (£5,000); bank loan interest, nil (£1,184); income tax, £29,072 (£61.131); other U.K. tax, £26,000 (£37,500); tax on investment income, £14,092 (£20,012); directors' fees, £3,295 (£3,239); leaving £82,428 (£90,153), of which subsidiary retained £3,776; profit of parent company, £78,652 (£80,808); surplus on sale of part of trade investments, £59,500; brought in, £46,623; dividend of 20% (same); to general reserve, £10,000 (same); employees' fund, £9,500; ordinary dividend equalisation fund, £50,000; forward, £64,675.

Electric Furnace Company—Consolidated profit on trading to March 31, £51,473; investment income, £3,566; provisions freed, £13,854—less £12,909 to taxation—patent fees, £1,589; to directors, including pensions, £18,940; interest, £5,383; audit, £604; depreciation of fixed assets, £4,237; written off quoted investments, £600; repairs, £2,000; profit, £25,809; to taxation, £14,700; to interim dividend on preferred ordinary shares of 3½%, £1,646; ordinary dividend of 3½%, £1,506; final dividend on preferred of 4½%, £2,116; final ordinary dividend of 4½%, £1,937; forward, £13,325. (Brought in £14,935, less £1,064 for profits prior to acquisition of shares in subsidiary, and £4,450 fees and remuneration.)

Stothert & Pitt—Consolidated profit for the year ended June 30, £354,301; to depreciation of fixed assets, excluding land and buildings, £16.918; replacement of patterns and drawings, £1,027; to directors' fees and other emoluments, £18,295; pension fund, £500; profit, £317,461; to income tax, £125,685; profits tax, £39,300; under-provision previous year, £1,519; net profit, £150,957; to profit of British subsidiary not dealt with in accounts, £12,795; profit of Stothert & Pitt, £138,162; special bonus to employees, £18,000; appropriations by Stothert & Pitt: to re-equipment, £25,000; to general reserve, £56,985; dividend on preference shares, £2,194; dividend of 10% and bonus of 5% on ordinary shares (same); forward, £79,037 (£67,804); consolidated carry forward, £119,625.

Quota Controls to Industry

Mr. Harold Wilson, President of the Board of Trade, said last week that he hoped to announce a considerable easing of quota controls in industry. Addressing the Institution of Works Managers he said that within the last six months a large number of controls had disappeared. It was true, he added, that if more steel was released to the car industry a great deal more dollars could be earned. It was also true of the shipping industry and of the oil companies abroad. But there was an obligation on those who criticised the steel quota for these enterprises to say from where the steel would come.

The problem was not that the Board of Trade was refusing steel to the industry, but that the steel was not there. Industrial production in the first half of this year was 20 per cent. above that for 1938 and one-third above that for 1935.

Rising Trend of Production Costs

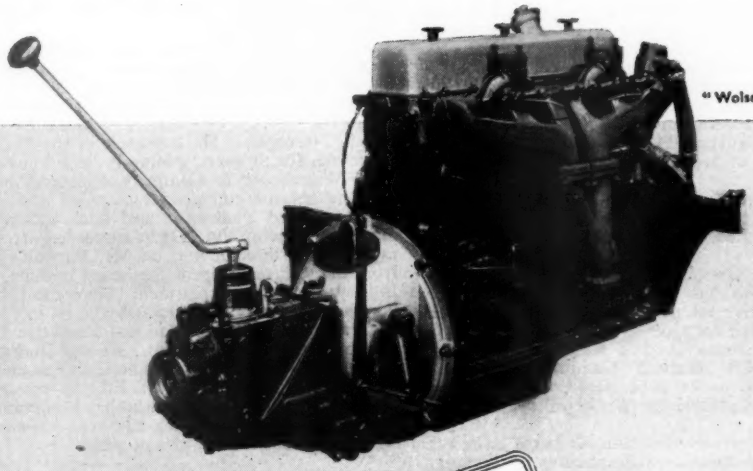
Qualcast Chairman's Comments

In the company's annual report, Mr. J. E. V. Jobson, chairman of Qualcast, Limited, iron and steel founders, etc., of Derby, comments on the steep rise in present-day production costs. Some idea of the very dangerous situation in which we are living commercially will be apparent from a study of the costs side of the chart which the directors have included in their report with the accounts for the year to June 30 last, he says. The chart shows in columnar form to-day's costs at the company's Derby foundry compared with 1938. Taking 1938 as 100, fabricating cost, excluding melted iron, had risen to 227 in 1948, cost of iron per ton of finished product to 159, cost of coke per ton of product to 343, cost of coke during the last three months of accounting period to 368, total cost per ton to 208, and sale price per ton to 206.

Mr. Jobson invites shareholders to compare the cost of iron necessary to produce a ton of finished product with the cost of coke per ton of finished product, in view of the threat of nationalisation of iron and steel. Coke is made from coal, coal is nationalised, he points out, and asks, is it not a reasonable assumption from those figures that its price will follow the rising trend and that costs will be still further increased if nationalisation is carried through?

Recent Wills

Lewis, H. N., of the Newall Engineering Company, Limited	£1,256
Warren, E. P., a director of Warren's New Holland Shipyard, Limited	£13,462
Kelly, A. D. R., of William Hamilton & Company, Limited, shipbuilders, of Port Glasgow	£4,767
Duff, M. B., partner of Duff & Geddes, structural and mining engineers, etc., of Edinburgh	£7,997
Spick, **Charles**, formerly a partner of Charles Spick & Company, iron, steel and machinery merchants, of Grantham, Lincs	£5,436
Lucas, **Oliver**, joint managing director of Joseph Lucas, Limited, manufacturing electrical engineers, of Birmingham	£318,268
Gallie, W. S., formerly chairman of the Glasgow Steel Roofing Company, Limited, and the Glasgow Expanded Metal Company, Limited	£11,635
Horley, R. E. G., electrical engineer, works manager and chief engineer to the Eastleigh factory of Pirelli-General Cable Works, Limited	£8,379
Beard, H. E. P., a late director of Denton & Best & Samuel Swift, Limited, steel forgers, etc., of Sheffield, the Neepsend Steel & Tool Corporation, Limited, Sheffield, and other companies	£74,888
Willcocks, **John**, of Newcastle-upon-Tyne, late general secretary of the Ship Constructors' and Shipwrights' Association and a past-president of the Confederation of Engineering and Shipbuilding Unions of the United Kingdom	£16,055
Hampton. **Horace**, chairman and joint managing director of C. & J. Hampton, Limited, engineers, etc., of Sheffield, hon. adviser to the Director of Hand Tools of the Ministry of Supply, president of the Engineers and Allied Hand Toolmakers' Association, and vice-chairman of the British Council of the Australian Association of British Manufacturers	£133,301



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Personal

MR. J. A. WELLINGS has been appointed branch manager of the foundry division of High Duty Alloys, Limited, Slough.

MR. ROBERT A. STAUFFER has been appointed assistant director of research of the National Research Corporation, Cambridge, Mass.

MR. W. M. FURNISS has been appointed chairman of the Electric Construction Company, Limited, Wolverhampton, in place of MR. G. W. S. HAWES, who has retired.

MR. J. A. PEACOCK has been appointed chief engineer of the Normanby Park Steelworks, Scunthorpe, of John Lysaght, Limited. He has been with the company 26 years.

MR. ALBERT E. GOUGH, of Dorman, Long & Company, Limited, who has completed 40 years' service without a single day off through illness, has received a presentation on the occasion of his retirement.

MR. J. SINCLAIR, formerly of St. Rollox Works, Glasgow, of the L.M.S. Railway Company, has been appointed assistant works superintendent (production and planning) at the Horwich Works of British Railways.

MR. JAMES THOMPSON, assistant shipyard manager of the Blyth Dry Docks & Shipbuilding Company, Limited, is retiring after 53 years' service with the company. Since 1918 he has supervised the laying of 134 keels.

MR. AUSTEN ALBU, whose adoption by the Edmonton Labour Party as candidate in the forthcoming bye-election was recently announced, has tendered his resignation as deputy director of the British Institute of Management.

MR. E. H. ARMITAGE (now resident abroad) and SIR SHIRLEY WORTHINGTON-EVANS (owing to pressure of legal work) have resigned from the board of Murex, Limited, Rainham, Essex. MR. H. C. GREEN and LT.-COL. J. F. TODHUNTER have been appointed directors of the company.

MR. J. L. HARRISON has relinquished his position with Catton & Company, Limited, manufacturers of steel castings, of Hunslet, Leeds, in order to take up an appointment with Low Moor Alloy Steelworks, Limited, Low Moor, Bradford, as metallurgist and Bessemer-shop manager.

MR. J. E. BENNETT, managing director of Crane, Limited, malleable-iron founders, etc., has been appointed chairman of the company. MR. C. R. CRANE, who held that position, has retired, although he remains a member of the board. MR. R. E. DUNNETT has been appointed managing director.

SIR MURRAY STEPHEN, chairman of Alexander Stephen & Sons, Limited, and MR. H. B. ROBIN ROWELL, chairman of R. & W. Hawthorn, Leslie & Company, Limited, have been elected chairman and vice-chairman respectively of the council of the British Shipbuilding Research Association for the ensuing year.

MR. A. J. BOWREN, production manager of A. Reyrolle & Company, Limited, manufacturing electrical engineers, of Hebburn-on-Tyne, has been elected president of the North-Eastern section of the Institution of Production Engineers, in succession to SIR CLAUDE D. GIBB, chairman and managing director of C. A. Parsons & Company, Limited, engineers, turbine makers, etc., of Newcastle-upon-Tyne.

MR. A. ELLIS, chairman and managing director of Peglers, Limited, manufacturers of engineers' and plumbers' brasswork, of Doncaster, retired from his position as managing director on Tuesday. He will retain his position as chairman. Mr. Ellis is going to live in Harrogate. He has been in the brass trade in Doncaster for 51 years, joining Peglers, Limited, in 1904 from Woodhouse & Company, Limited. Some years later he became commercial manager and in 1923 he was appointed a director and later became assistant managing director. In 1938 he succeeded Mr. F. Birchall as managing director and on Mr. Birchall's retirement from the chairmanship of the board in June, 1947, Mr. Ellis was appointed chairman. Since the formation of the National Brass Foundry Association in 1943, he has been a member of the National Executive Committee and in 1946 he was president. He was chairman of the Northern Brassfounders' Employers' Association from 1943 to 1945. Succeeding Mr. Ellis as managing director is MR. A. E. EMBERTON, who has been with the company for 39 years and who has been assistant managing director since June of last year.

Mr. Spens Calls for Tin Agreement

Speaking at the annual meeting of the London Tin Corporation, Limited, recently, Mr. J. Ivan Spens, chairman, stressed the need to achieve an international understanding on tin output. When those countries whose mines were overrun by the Japanese were fully rehabilitated, annual production of tin was likely to be in excess of the actual annual consumption, he said. In his opinion, it was essential that matters were not left until there was a burdensome excess production.

"This can only lead to disorganisation in the industry, harmful economic effects in the producing countries, and probably violent fluctuations in the price, all of which are harmful not only to producers, but also to consumers. It is my sincere hope," said Mr. Spens, "that the question will be faced and dealt with in the near future, even although there may be, for a period, residual buyers for purposes of strategic stockpiles."

Stewarts and Lloyds' South African Expansion

The directors of Stewarts and Lloyds of South Africa, Limited, are proposing to raise just over £800,000 of new money. Their intention is to offer 410,000 new £1 ordinary shares at £2 per share to ordinary shareholders in the proportion of one new share for every two held. The directors say that "with the general industrial and commercial development which is taking place throughout the country, it has become necessary to embark on extensive capital schemes." These schemes include the establishment of a non-ferrous tube works at Woodstock, Cape Town, and the erection of tube works at Que Que, Southern Rhodesia.

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48F/MB5(b)

Raw Material Markets

Iron and Steel

There has been no change in the number of blast furnaces at work for some time past and, so far as can be ascertained, there are no immediate prospects of that expansion of production which is necessary to satisfy fully the requirements of the foundry trade. Though not excessive, the output of basic iron suffices for the current needs of the steel plants, but hematite supplies are carefully rationed and there is a definite shortage of high-phosphorus iron. Stocks at the foundries in no case exceed a month's supply, and very few establishments have as much as that in hand. Deliveries, too, are irregular and the difficulties of the makers of light castings are further accentuated by the shortage of cast-iron scrap.

The arrival of bigger tonnages of steel semis from overseas has eased to some extent the difficulties of the re-rollers, whose outputs have recently been curtailed owing to the lack of material. Belgium now ranks as Britain's most abundant external source of supply, and although this imported material is costly, it is a welcome supplement to the heavier tonnages provided by British steel plants. Sheet mills are now getting slabs and bars on a scale sufficient to maintain production at, or near, capacity levels, but 2-in. to 3-in. billets are still in short supply and all offerings of defectives, crops, etc., are taken up as they arise.

Apart from the sheet trade, which is quite incapable of handling the weight of material in urgent demand both at home and abroad, the plate mills are probably the most overloaded branch of the finished-steel industry. Consumers are reported to be queueing up for supplies as far ahead as the second quarter of 1949. Heavy constructional material is perhaps a little easier, but the rail mills have extensive rolling programmes and there is a heavy miscellaneous demand for fishplates, chairs, points and crossings. Tubemakers, with big overseas contracts in hand, are using impressive tonnages of material and the priority demands of makers of power plants are equally heavy. Locomotives and wagon builders have several years' work in hand and the wire mills are also extremely busy.

Non-ferrous Metals

The non-ferrous metal trade is beginning to settle down at the revised price levels set up by the Ministry of Supply's recent Control Order. The scrap market, however, has reacted only half-heartedly to the higher levels ruling in virgin metals, for users are doing their best to resist any increase and in scrap to-day there is a buyer's market. There has been some advance, of course, but not in line with the upward adjustment in virgin metals, and there is no guarantee that the quotations for secondary metals will not slip back again. In the United States activity is unimpaired and metal is going into consumption at an undiminished rate, while the existence of the Government's stockpiling policy helps to keep values from dropping. In this country demand for certain non-ferrous semis has improved, but in one or two directions dull conditions still prevail.

Figures issued by the Bureau of Non-ferrous Metal Statistics show that in August consumption of virgin copper was 25,602 tons, compared with 25,573 tons in July, while the usage of scrap fell from 15,299 tons in July to 12,003 tons in August. There was a sharp increase in copper stocks in the United Kingdom during this month, the figure being made up of metal held by the Government as well as that in consumers' hands. The comparative totals were 99,908 tons at July 31 and 115,120 at the end of August. Lead stocks also increased to 26,026 tons at August 31, compared with 22,312 tons at July 31.

Since the rise in metal values took place there has been a good deal of uneasiness in some quarters, and it would probably be true to say that the trade does not trust this new and very high price level. For one thing, it is "American made," and in the present state of Britain's finances, quite unsuited to us. Lead at a shilling a pound is obviously out of all reason and must inevitably lead to a reduction in demand, as soon as arrangements can be made to replace it by some other commodity available at a lower price. With copper at 1s. 3d. per lb., there can be little doubt that the copper tube is a more favourable proposition than lead pipe for a number of purposes.

New Trade Marks

The following applications to register trade marks appear in the "Trade Marks Journal":—

"RUDOR"—Machines included in Class 7. H. G. RUDDICK, 15, Western Street, Brighton.

"VACTRIC"—Washing and mixing machines. VACTRIC, LIMITED, 1, Langham Place, London, W.1.

"LATIL"—Gas generating plant. LATIL INDUSTRIAL VEHICLES, LIMITED, 7, Fitzroy Square, London, W.1.

"BUOY"—Steam traps (parts of machines). BRITISH STEAM SPECIALITIES, LIMITED, Fleet Street, Leicester.

"COMFORTRIC" — Clothes-washing machines, etc. MANOR-LECTRIC, LIMITED, 23-25, Wood Street, Barnet, Herts.

"COMMODORE"—All goods included in Class 8. PLATERS & STAMPERS, LIMITED, Colne Road, Burnley, Lancs.

"STEBILO"—Sewing machines and parts. J. THORPE (MANCHESTER), LIMITED, 30, Cannel Street, Manchester, 4.

"MULTIBRATER"—Vibrating machines and parts. C. H. JOHNSON (MACHINERY), LIMITED, Adswood Road, Stockport.

"ACE" and "APEX"—Metal castors, runners, etc. R. E. GUEST, LIMITED, 315, Long Acre, Nechells, Birmingham, 7.

MR. T. R. WALKER was presented with a gold watch and chain recently to mark 21 years' service as hon. secretary of Sheffield and district branch of the Institute of British Foundrymen. The presentation was made by Mr. R. B. Templeton, president of the Institute, at the first meeting of the winter session.